#### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization

International Bureau



# 

### (43) International Publication Date 25 March 2004 (25.03.2004)

#### PCT

### (10) International Publication Number WO 2004/025613 A1

(51) International Patent Classification<sup>7</sup>:

G09G 3/30

(21) International Application Number:

PCT/IB2003/003411

(22) International Filing Date: 4 August 2003 (04.08.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1021427

11 September 2002 (11.09.2002) NL

(71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): LIEDENBAUM, Coen, T., H., F. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agent: TOL, Arie, J., W.; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Declaration under Rule 4.17:

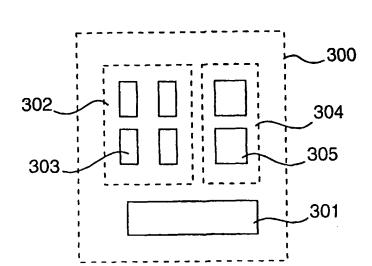
as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, Cl, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

#### Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PIXEL STRUCTURE IN AN ELECTROLUMINESCENT DISPLAY DEVICE



(57) Abstract: An electroluminescent device (200) for use, e.g., in a colour matrix display unit is presented. Picture elements comprise a plurality of electroluminescent sub-pixels (201,202,203) capable of emitting light when subject to electric current. The sub-pixels each have a degradation lifetime and an emissive area (211,212,213) and, for any pair of first and second sub-pixels in a picture element, the ratio between the first sub-pixel emissive area and the second sub-pixel emissive area is inversely proportional to the ratio between the degradation lifetime of said first sub-pixel and the degradation lifetime of the second sub-pixel.

NO 2004/025613 A1

Rec'd PCT/PTO 0 8 MAR Internation:

INTERNATIONAL SEARCH REPORT

PCT/IB 03/03411 A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G09G3/30 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) IPC 7 **G09G** Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal. PAJ C. DOCUMENTS CONSIDERED TO BE RELEVANT Category <sup>c</sup> Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X EP 1 032 045 A (SANYO ELECTRIC CO) 1,2,5-10 30 August 2000 (2000-08-30) abstract; figures 4,7,9 paragraphs '0015!, '0016!, '0018!-'0030!, '0067!-'0070!, '0086!-'0088! EP 1 079 361 A (HARNESS SYST TECH RES LTD 1-10 ;SUMITOMO WIRING SYSTEMS (JP); SUMITOMO) 28 February 2001 (2001-02-28) abstract; figure 11 Further documents are listed in the continuation of box C. X Patent family members are listed in annex. Special categories of cited documents: \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the \*A\* document defining the general state of the art which is not considered to be of particular relevance invention earlier document but published on or after the international document of particular relevance; the claimed invention filing date cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled document referring to an oral disclosure, use, exhibition or other means document published prior to the international filing date but later than the priority date claimed in the art. \*&\* document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 26/11/2003 18 November 2003 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2

NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016

Fulcheri, A



Internation plication No PCT/IB 03/03411

		PC1/18 03/03411		
C.(Continu	ation) DOCUMENTS CONSIDERED TO BE RELEVANT			
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
<b>A</b>	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 06, 30 April 1998 (1998-04-30) -& JP 10 039791 A (MITSUBISHI ELECTRIC CORP;IDEMITSU KOSAN CO LTD), 13 February 1998 (1998-02-13) cited in the application abstract	1-10		
<b>A</b>	NANNO Y ET AL: "IMAGE ANALYSIS OF AREA RATIO GRAY SCALE METHOD FOR ACTIVE MATRIX LCDS"  ASIA DISPLAY / IDW'01. PROCEEDINGS OF THE 21ST INTERNATIONAL DISPLAY RESEARCH CONFERENCE IN CONJUCTION WITH THE 8TH INTERNATIONAL DISPLAY WORKSHOPS. NAGOYA, JAPAN, OCT. 16 - 19, 2001, INTERNATIONAL DISPLAY RESEARCH CONFERENCE. IDRC, SAN JOSE, CA: SID, vol. CONF. 21 / 8, 16 October 2001 (2001-10-16), pages 419-422, XP001134222 the whole document	1-10		

# INTERN DNAL SEARCH REPORT

Information on patent family members

Internation: lication No PCT/IB 03/03411

Patent document cited in search report		Publication date	Patent family member(s)			Publication date	
EP 1032045	Α	30-08-2000	EP JP US	1032045 2001290441 6366025	A	30-08-2000 19-10-2001 02-04-2002	
EP 1079361	A	28-02-2001	JP JP JP EP	2001056661 2001100698 2001117535 1079361	A A	27-02-2001 13-04-2001 27-04-2001 28-02-2001	
JP 10039791	Α	13-02-1998	NONE		***		